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TOUGHBOOK TOUGHPAD

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TRANSFORMING THE WAY BUSINESSES WORK

	FULLY RUGGED	FULLY RUGGED
	FZ-E1/FZ-X1 5" handheld tablet with data, voice and optional barcode reader 	**JT-B1** Lightweight, one-handed operation, fully rugged Android™ 4.0 tablet with 7" outdoor display – enables field workforces to work anywhere, efficiently and securely.
Mobile Computing Platform / CPU	Qualcomm® MSM8974AB 2.3 GHz Quad-core processor (FZ-E1) Qualcomm® APQ8064T 1.7GHz Quad-core processor (FZ-X1)	Texas Instruments® OMAP™ 4460, 1.5GHz Dual Core Processor
Operating System	Windows Embedded 8.1 Handheld (FZ-E1) Android™ 4.2.2 (FZ-X1)	Android™ 4.0
Memory & Storage	2 GB RAM and 32GB eMMC storage	1GB and 16GB Flash
Display	5" HD (1280 x 720 pixels) Sunlight-readable display with Glove & Rain mode 10-point capacitive multi-touch Brightness: up to 500 cd/m²	7" Active Matrix (TFT) colour LCD, 1024 x 600 pixels, up to 500cd/m² brightness with ambient light sensor, anti-glare/reflection film, 4 finger capacitive touchscreen
Camera	Rear: 8MP with LED Flash Front: 1.3MP	Front: 1.3MP, fixed focus Rear: 13MP, auto focus with LED flash
Expansion Slots	MicroSDXC Memory Card: x1 (max. 64GB)	MicroSDHC Memory Card: x1 (up to 32GB)
Interfaces	Micro USB 2.0 DC-IN (for quick charging) Docking connector (13-pin) Headset jack (3.5mm)	Docking Connector: x1 Micro USB: 2.0 x1 SIM card: x1 (3G model only) Headset: x1 DC Input: x1 NFC: ISO/IEC21481 Type A/B, Felica
Connectivity	Bluetooth™: 4.0 Class 1 Wireless LAN: IEEE 802.11a/b/g/n/ac Voice & Data: 4G LTE, HSPA+, UMTS, EDGE, GPRS, GSM GPS: 2 m CEP50 (±2 to 4 m), GLONASS NFC: Built-in (Type A, B, Felica)	Bluetooth™: Version 4.0 + EDR Wireless LAN: IEEE802.11 a/b/g/n GPS: Satellite GPS
Power	AC adapter: Input: 100V-240V AC, 50Hz/60Hz; Output: 16V DC, 3.75A Battery: Li-Ion 3.8V, 6200 mAh (hot swappable) Battery life: up to 14 hours of continuous data access up to 23 hours talk time up to 1000 hours standby time Battery charging time: 50% charge in 1.2 hours, full charge in approx. 3.6 hours (FZ-E1) 50% charge in 1 hours, full charge in approx. 3 hours (FZ-X1)	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 12V DC, 2A Battery: Lithium-Ion (5.720mAh), user replaceable Battery Life: Approx. 8 hours
Security Features	FIPS140-2 level-1 compliant & Built-in ARM® TrustZone®	
Dimensions (W x H x D) & Weight	87.4 mm x 165 mm x 30.9 mm / 3.4" x 6.5" x 1.2" (without protruding parts) Approx. 426g / 0.94lb. (without Barcode reader)	221mm x 17.8mm x 130mm / 8.7" x 0.7" x 5.1" 545g / 1.2lb
Options for Integration	Integrated 1D/2D Barcode reader	Mobile Broadband (HSPA+, up to 14.4Mbps), 4G Mobile Broadband (LTE)
Ruggedisation	MIL-STD 810G certified (vibration, altitude, drop, shock, temperature and humidity) 3 metre drop resistant[1] IP68 (submersible in water up to 1.5 metres for 30 minutes) -20°C to +60°C operating temperature Raised bezel for display protection	Water resistance test: IEC529 (JIS C0920) IPX5[4], MIL-STD 810G 506.5, III[4] Dust resistance test: IEC529 (JIS C0920) IP6X[4], MIL-STD 810G 510.5, Level[4] Gravity drop resistance test: MIL-STD 810G 516.6, (180cm drop)[4] Vibration resistance test: MIL-STD 810G 514.6, category 20 & 24[4]

	FULLY RUGGED	FULLY RUGGED
	FZ-M1 Compact and lightweight, fully rugged Windows 8.1 field tablet, offering wide functionality and outstanding durability for outdoor working. 	**FZ-B2** Fully rugged, fanless Android™-powered tablet with 7" outdoor display
Mobile Computing Platform / CPU	Intel® Core™ i5-4302Y vPro™ processor (1.6GHz, 3MB Intel® Smart Cache) (Standard Model) or Intel® Celeron N2807™ processor (1.58GHz, 1MB L2 Cache) (Value Model)	Intel® Celeron™ N2930 processor (1.83GHz, 2MB Cache)
Operating System	Windows 8.1 Pro (Standard Model) or Windows® 7 Professional downgrade (Standard Model) Windows 8.1 (Value Model)	Android™ 4.4
Memory & Storage	4GB RAM (max. 8GB), 128GB SSD (Standard Model) or 2GB RAM (max. 4GB), 128GB SSD (Value Model)	2GB RAM and 32GB eMMC storage
Display	7" Active Matrix (TFT) colour LCD 1280 x 800 pixels, WXGA (up to 500cd/m²) 10 finger capacitive touchscreen	7" Active Matrix (TFT) colour LCD 1280 x 800 pixels, WXGA (up to 500cd/m²) 5 finger capacitive touchscreen
Camera	Front: 2MP Rear: 5MP with autofocus and LED light (8MP optional)	Front: 2MP Rear: 5MP with autofocus and LED light
Expansion Slots	MicroSD/SDXC Memory Card: x1	MicroSDHC Memory Card: x1 (max. 32GB)
Interfaces	Serial (16550A compatible): D-sub, 9-pin optional (configuration port) LAN: RJ-45 optional (configuration port) 2D Barcode Reader: Optional (configuration port) Smartcard Reader: Optional (business expansion module) UHF RFID: Optional (business expansion module) Headset: x1 DC Input: Jack USB 3.0: x1, 9-pin Port Replicator: 24-pin External Antenna Connector: Optional	LAN: RJ-45 optional (configuration port) 2D Barcode Reader: Optional (configuration port) Smartcard Reader: Optional (business expansion module) Headset: x1 DC Input: Jack USB 3.0: x1, 9-pin Port Replicator: 24-pin External Antenna Connector: Optional
Connectivity	Bluetooth™: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 7260 LAN: IEEE 802.3 10 Base-T / IEEE 802.3u 100 Base-TX / IEEE 802.3ab 1000 Base-T optional	Bluetooth™: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 7260 LAN: IEEE 802.3 10 Base-T / IEEE 802.3u 100 Base-TX / IEEE 802.3ab 1000 Base-T optional
Power	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 16V DC, 4.06A Battery: Lithium-Ion (7.2V, 3220mAh), user replaceable Battery Life: Approx. 8 hours (Windows® 8.1, Mobile Mark™ 2007, LCD brightness: 60cd/m²) Hot Swap Battery: Optional via business expansion module	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 16V DC, 4.06A Battery: Lithium-Ion (7.2V, 3220mAh), user replaceable Battery Life: Approx. 7 hours Hot Swap Battery: Optional via business expansion module
Security Features	TPM (Trusted Platform Module, TCG V2.0 Windows 8.1, V1.2 Windows 7 compliant) (Standard Model) or TPM (Trusted Platform Module, TCG V2.0 Windows 8.1) (Value Model) Integrated hardware security lock slot	
Dimensions (W x H x D) & Weight (Approx.)	203mm x 18mm x 132mm / 7.98" x 5.20" x 0.71" 540g / 1.2lbs	203mm x 18mm x 132mm / 7.98" x 5.20" x 0.71" 540g / 1.2lbs
Options for Integration	GPS, Mobile Broadband (3G HSPA+ or 4G LTE)	Mobile Broadband (4G LTE)
Ruggedisation	Water resistance test: IEC529 (JIS C0920) IPX5[4] Dust resistance test: IEC529 (JIS C0920) IP6X[4] Gravity drop resistance test: 150cm drop[1]	Water resistance test: IEC529 (JIS C0920) IPX5[4] Dust resistance test: IEC529 (JIS C0920) IP6X[4] Gravity drop resistance test: 150cm drop[1]

	FULLY RUGGED	FULLY RUGGED
	FZ-A1 The 10.1" Android™-powered Toughpad FZ-A1 is ideal for highly mobile outdoor workers in challenging conditions. 	**FZ-G1** The first fully rugged Windows 8 tablet to feature IPSα screen technology, the 10.1" FZ-G1 combines lightweight design, business expansion ports and durability for the ultimate in field-based computing.
Mobile Computing Platform / CPU	Marvell® 1.2GHz dual-core processor	Intel® Core™ i5-4310U vPro™ processor (2.0GHz, 3MB Intel® Smart Cache)
Operating System	Android™ 4.0	Windows 8.1 Pro Windows® 7 Professional downgrade
Memory & Storage	1GB 16GB Flash	4GB DDR3L SDRAM (max. 8GB) 128GB SSD
Display	10.1" Active Matrix (TFT) colour LCD 1024 x 768 (XGA), up to 500cd/m² brightness with ambient light sensor, anti-glare/reflection film, capacitive multi-touch screen and digitiser	10.1" Active Matrix (TFT) IPS pro next colour LCD, 1920 x 1200 pixels, WUXGA (up to 800cd/m²) 10 finger capacitive touchscreen and digitiser
Camera	Front: 2MP, fixed focus Rear: 5MP, auto focus with LED flash	Front: 720p Rear (optional): 3MP, still picture
Expansion Slots	MicroSDHC Memory Card: x1 (up to 32GB)	MicroSD/SDXC Memory Card: x1 optional (configuration port)
Interfaces	Docking Connector: x1 Micro USB: 2.0 x1 Micro HDMI: x1 SIM card: x1 (3G model only) Audio: x1 DC Input: x1	Serial (16550A compatible): D-sub, 9-pin optional (configuration port) HDMI: x1 Headset: x1 DC Input: Jack USB 2.0: x1, 4-pin optional (configuration port) USB 3.0: x1, 9-pin LAN: RJ-45 optional (configuration port) Port Replicator: 24-pin External Antenna Connector: Optional
Connectivity	Bluetooth™: Version 2.1 + EDR Wireless LAN: IEEE802.11 a/b/g/n 3G : Ericsson F5521gw HSPA+, up to 21Mbps (optional) GPS: Satellite GPS	Bluetooth™: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 7260 LAN: IEEE 802.3 10 Base-T / IEEE 802.3u 100 Base-TX, IEEE 802.3ab 1000 Base-T optional
Power	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 12V DC, 2A Battery: Lithium-Ion (33.9Wh) Serviceable Battery Life: Approx. 10 hours	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 16V DC, 4.06A Battery: Lithium-Ion (10.8V, 4400mAh), user replaceable Battery Life: Approx. 10 hours (Windows® 8.1, Mobile Mark™ 2007, LCD brightness: 60cd/m²) Hot Swap Battery: Optional
Security Features	Dedicated security processor core SoC compliant with FIPS 140-2 Level 2, Marvell® Trusted Boot, Marvell® hardware assisted storage encryption, AuthenTec® Mobile Security, McAfee Mobile Security (trial version)	TPM (TCG V1.2 compliant), Integrated hardware security lock slot, Password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	226.3mm x 17mm x 212mm / 10.5" x 0.67" x 8.35" 993g / 2.19lb (without pen)	270mm x 19mm x 188mm / 10.6" x 0.75" x 7.4" 1.1kg / 2.43lb
Options for Integration		GPS, Mobile Broadband (HSPA+, up to 14.4Mbps) or 4G LTE
Ruggedisation	Water resistance test: IPX5[1] Dust resistance test: IP6X[1] Gravity drop resistance test: 120cm (unit power off)[1] Temperature (operating) –10 °C to 50 °C (14 °F to 122 °F)[1]	Water resistance test: IEC529 (JIS C0920) IPX5[4], MIL-STD 810G 506.5, III[4] Dust resistance test: IEC529 (JIS C0920) IP6X[4], MIL-STD 810G 510.5, Level[4] Gravity drop resistance test: MIL-STD 810G 516.6, (180cm drop)[4] Vibration resistance test: MIL-STD 810G 514.6, category 20 & 24[4]

Panasonic recommends Windows.

	BUSINESS RUGGED	BUSINESS RUGGED
	UT-MB5 Standard Model The 20" 4K business rugged tablet designed for photographers, architects, marketers and sales people. 	**UT-MA6 Performance Model** Designed for high-end applications like CAD and 3D modelling.
Mobile Computing Platform / CPU	Intel® Core™ i5-3437U vPro™ processor (1.9GHz, 3MB Intel® Smart Cache, Mobile Intel® Express chipset QM77)	Intel® Core™ i7-3687U vPro™ processor (2.1GHz, 4MB Intel® Smart Cache, Mobile Intel® QM77 Express Chip set)
Operating System	Windows 8.1 Pro	Windows 8.1 Pro Windows® 7 Professional downgrade
Memory & Storage	4GB DDR3 SDRAM (max. 8GB) 256GB SSD	16GB DDR3L SDRAM 256GB SSD
Display	4K (3840 x 2560 pixels) Ultra high resolution, 230 ppi 20" IPSα display with 15:10 aspect ratio Graphic Chip: NVIDIA® GeForce® 745M Graphics (2GB dedicated VRAM)	4K (3840 x 2560 pixels) Ultra high resolution, 230 ppi 20" IPSα display with 15:10 aspect ratio Graphic Chip: NVIDIA® Quadro® K1000M Graphics (2GB dedicated VRAM)
Camera	Front: HD	Front: 0.9MP Rear: 5MP
Expansion Slots	SDXC Memory Card: x1 (max. 64GB)	SDXC Memory Card: x1 (max. 64GB)
Interfaces	USB: 3.0 x1 Headset: x1 Port Replicator: x1 (24-pin) LAN (100BASE-TX): x1 (via optional cradle) HDMI: x1 (via optional cradle) Additional USB: 3.0 x3 (via optional cradle)	USB 3.0: x1 Mini DisplayPort™: x1 LAN (1000BASE-T): x1 Headset: x1 Port Replicator: x1 (24-pin) Smart Card Reader: x1 LAN (100BASE-TX): x1 (via optional cradle) HDMI: x1 (via optional cradle) Additional USB: 3.0 x3 (via optional cradle)
Connectivity	Bluetooth™: 4.0 + EDR Class 1 Wireless LAN: Intel® Centrino® Advanced-N 6235 802.11a/b/g/n	Bluetooth™: 4.0 + EDR Class 1 Wireless LAN: Intel® Centrino® Advanced-N 6235 802.11a/b/g/n
Power	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 15.6V DC, 7.05A Battery: Built-in Lithium-Ion 11.1V, 3180mAh	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 15.6V DC, 7.05A Battery: Built-in Lithium-Ion 11.1V, 4770mAh
Security Features	TPM (Trusted Platform Module, TCG V1.2 compliant), Integrated hardware security lock hole, Password security (supervisor password, user password, HDD lock)	TPM (Trusted Platform Module, TCG V1.2 compliant), Integrated hardware security lock hole, Password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	475mm x 334mm x 12.5mm / 18.7" x 13.1" x 0.49" Approx. 2.35kg / Approx. 5.18lb	475mm x 334mm x 12.5mm / 18.7" x 13.1" x 0.49" Approx. 2.54kg / Approx. 5.60lbs
Options for Integration	Smart Card Reader (optional on 8GB RAM model only) Electronic Touch Pen	Electronic Touch Pen
Ruggedisation	Passes 76cm free-fall test[3]	Passes 76cm free-fall test[3]

As an ENERGY STAR® Partner, Panasonic Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency. Active Matrix colour display conforms to industry standards. Some displays may contain isolated illuminated or dark pixels as an artefact of the manufacturing process (effective pixels: minimum 99.998%). RAM capacity calculated as follows: 1MB = 1,048,576 bytes. HDD capacity calculated as follows: 1GB = 1,000,000,000 bytes. Toughbook is a brand name and registered trademark of Panasonic Corporation. Google, the Google logo, YouTube and Android are trademarks of Google Inc. Acrobat® is a registered trademark of Adobe® Systems Incorporated. Intel, the Intel logo, Intel Core, Intel vPro, Core Inside and vPro Inside are trademarks of Intel Corporation in the U.S. and other countries. Microsoft® and Windows® are registered trademarks of Microsoft® Corporation of the United States and/or other countries. All other brand names shown are the registered trademarks of the relevant companies. All rights reserved. All working conditions, times and figures quoted are optimum or ideal levels and may differ as a result of individual and local circumstances. Technical specifications are subject to change without notice. *Among 11.6" hybrid PC, as of 12th December 2012.

[1] Tested in Panasonic Factory. [2] Config. A: 1x PC Card Type I or II + 1x ExpressCard; Config. B: 2x PC Card Type I or II, no ExpressCard. [3] The shock resistance, pressure resistance, and splashproof functions are not a guarantee against damage or malfunction. [4] Tested by an independent third-party lab following IEC 60529, sections 13.4, 13.6.2, 14.2.5, 14.3. [5] Project based. Only one interface can be selected. [6] Safety Certifications list available at www.toughbook.eu.

Computer Product Solutions (CPS) BU, Panasonic System Communications Company Europe (PSCEU), Panasonic Marketing Europe GmbH, Hagenauer Straße 43, 65203 Wiesbaden (Germany).

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Panasonic recommends Windows.

	FULLY RUGGED	FULLY RUGGED
	CF-31 Offering the ultimate balance of screen, performance and rugged reliability, the CF-31 is the flagship of the Toughbook range. 	**CF-19** The market-leading, rotating screen, convertible notebook, which sets the benchmark in ruggedness.
Mobile Computing Platform / CPU	Intel® Core™ i5-3380M vPro™ processor (2.9GHz, 3MB Intel® Smart Cache, Intel® 7 series Express chipset QM77) (Performance model) or Intel® Core™ i5-3340M vPro™ processor (2.7GHz, 3MB Intel® Smart Cache, Intel® 7 series Express chipset QM77) (Standard model)	Intel® Core™ i5-3340M vPro™ processor (2.7GHz, 3MB Intel® Smart Cache, Intel® 7 series Express chipset QM77)
Operating System	Windows 8 Pro Windows® 7 Professional downgrade	Windows 8 Pro Windows® 7 Professional downgrade
Memory & Storage	4GB DDR3L SDRAM (max. 8GB) 500GB HDD (SATA)	4GB, DDR3L SDRAM (max. 8GB) 500GB HDD (SATA, easy accessible, shock resistant – withstands 180cm[4] drop)
Display	13.1" LCD sunlight-viewable XGA Active Matrix (TFT) colour LCD (up to 1,200cd/m²) with circular polariser; concealed mode Graphic Chip: AMD Radeon™ HD 7750M, 512MB (Performance model) or Intel® HD Graphics 4000, UMA (Windows® 7 64bit max. 1696MB, 32bit max. 1428MB) (Standard model)	10.1" sunlight-viewable transflective plus XGA Active Matrix (TFT) colour LCD with circular polariser (up to 500cd/m² transmissive and 6,500cd/m² reflective brightness, depending on light conditions); Concealed Mode; Ambient light sensor for advanced power management; Graphic Chip: Intel® HD Graphics 4000, UMA (Windows® 7 64bit max. 1696MB, 32bit max. 1557MB)
Camera		Rear (optional): 3MP, dual LED light, still picture
Expansion Slots	PC Card: x1 Type I or x1 Type II, allowable current 3.3V, 400mA, 5V: 400mA ExpressCard: x1, ExpressCard/34 or ExpressCard/54 SD/SDXC Memory Card: x1 RAM Module: x1 DDR3L 200-pin SO-DIMM (1.5V, DDR3 SDRAM, PC3-10600 compliant)	PC Card: x1 Type II (3.3V: 400mA, 5V: 400mA) ExpressCard: x1, ExpressCard/34 or ExpressCard/54 SD/SDXC Memory Card: x1 RAM Module: x1 DDR3L 200-pin SO-DIMM (1.5V, DDR3 SDRAM, PC3-10600 compliant)
Optical Drive	Multi Media Pocket: Will accept optional Multi Drive	
Interfaces	Serial (16550A compatible): D-sub, 9-pin External display (VGA port): Mini D-sub, 15-pin HDMI: x1 Headphone: Mini-jack, 3.5 DIA Microphone: Mini-jack, 3.5 DIA, stereo DC Input: Jack USB: 2.0 x3, 4-pin; 3.0 x1, 9-pin Modem: RJ-11 (Optional, project based) LAN: RJ-45 (2nd LAN optional, project based) Firewire (IEEE1394a): x1, 4-pin (Optional, project based) External Antenna: x1 (Dedicated 50 ohms coaxial connector) Port Replicator: 80-pin	Serial (16550A compatible): D-sub, 9-pin External display (VGA port): Mini D-sub, 15-pin Headphone: Mini-jack, 3.5 DIA, stereo Microphone: Mini-jack, 3.5 DIA, stereo DC Input: Jack USB: 2.0 x1, 4-pin; 3.0 x1, 9-pin Modem: RJ-11 LAN: RJ-45 Firewire (IEEE1394a): x1, 4-pin External Antenna: x2 (Dedicated 50 ohms coaxial connector) Port Replicator: 100-pin
Connectivity	Bluetooth™: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Centrino® Advanced-N 6235 802.11 a/b/g/n compliant; slide on/off switch LAN: IEEE 802.3 10 Base-T / IEEE 802.3u 100 Base-TX / IEEE 802.3ab 1000 Base-T (2nd LAN Project based) Modem Data (optional): 56 kbps (V.92); Fax: 14.4 kbps	Bluetooth™: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Centrino® Advanced-N 6235 802.11 a/b/g/n compliant; slide on/off switch LAN: 1000BASE-T/100BASE-TX/10Base-T Modem Data: 56 kbps (V.92); Fax: 14.4 kbps / voice not compatible
Power	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 15.6V DC, 7.05A Battery: Lithium-Ion (10.65V, Typical 8550mAh / Minimum 8100mAh) Battery Life: Approx. 12 hours (Performance model) / 14.5 hours (Standard model) (Windows® 7, Mobile Mark™ 2007, LCD brightness: 60cd/m²)	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 16V DC, 5A Battery: Lithium-Ion (10.65V, Typical 5.7Ah / Minimum 5.4Ah) Battery Life: Approx. 10 hours (Windows® 7, Mobile Mark™ 2007, LCD brightness: 60cd/m²)
Security Features	TPM (TCG V1.2 compliant), Integrated hardware security lock slot, Password security (supervisor password, user password, HDD lock)	TPM (TCG V1.2 compliant), Integrated hardware security lock slot, Password security (supervisor password, user password, HDD Lock)
Dimensions (W x H x D) & Weight (Approx.)	302mm x 73.5mm x 292mm / 11.9" x 2.9" x 11.5" (excluding protrusions) 3.72kg / 8.2lb	271mm x 49mm x 216mm / 10.7" x 1.93" x 8.5" (excluding protrusions) 2.3kg / 5.0lb (including battery)
Options for Integration	GPS, Fingerprint Reader, Smart Card Reader, 3G Mobile Broadband (HSPA+, up to 14.4Mbps)	GPS, Fingerprint Reader, Smart Card Reader, 3G Mobile Broadband (HSPA+, up to 14.4Mbps), Solid State Disk
Ruggedisation	Water resistance test: IEC529 (JIS C0920) IP-X5[4], MIL-STD 810G 506.5– I & III[4] Dust resistance test: IEC529 (JIS C0920) IP-6X[4], MIL-STD 810G 510.5– I & II[4] Gravity drop resistance test: MIL-STD 810G 516.6 IV[4] (180cm drop) Vibration resistance test: MIL-STD 810G 514.6– I & II[4]	Water resistance test: IEC529 (JIS C0920) IPX5[4], MIL-STD 810G 506.5, III[4] Dust resistance test: IEC529 (JIS C0920) IP6X[4], MIL-STD 810G 510.5, Level[4] Gravity drop resistance test: MIL-STD 810G 516.6, (180cm drop)[4] Vibration resistance test: MIL-STD 810G 514.6, category 20 & 24[4]

	FULLY RUGGED	FULLY RUGGED
	CF-H2 Field/Health The Toughbook CF-H2 is a unique tool. Unique in its ability to transform the way mobile professionals work – wherever and whenever that might be. Health model is easy to clean/disinfect (meets Hospital Safety Certifications[6]). 	**CF-D1** Fully rugged professional tablet, built for the world of diagnostics, designed in conjunction with technicians working on engines, automobiles, trucks and machines in either the workshop or field.
Mobile Computing Platform / CPU	Intel® Core™ i5-3437U vPro™ processor (1.9GHz, 3MB Intel® Smart Cache, Intel® 7 series Express chipset QM77)	Intel® Core™ i5-3340M vPro™ processor (2.7GHz, 3MB Intel® Smart Cache, Intel® 7 series Express chipset QM77)
Operating System	Windows 8 Pro Windows® 7 Professional downgrade	Windows 8.1 Pro Windows® 7 Professional downgrade
Memory & Storage	4GB DDR3L SDRAM (max. 8GB) 500GB HDD (SATA) or 128GB SSD (Contact Smartcard Reader Model)	4GB DDR3 SDRAM (max. 8GB) 500GB HDD (SATA)
Display	10.1" sunlight-viewable transflective plus XGA Active Matrix (TFT) colour LCD with circular polariser (up to 500cd/m² transmissive and 6.500cd/m² reflective brightness, depending on light conditions) and ambient light sensor Graphic Chip: Intel® HD Graphics 4000, UMA (Windows® 7 64bit max. 1696MB, 32bit max. 1547MB)	13.3" Active Matrix (TFT) colour LCD 1366 x 768 pixels (HD) with touchscreen Up to 400cd/m² transmissive brightness Optional Outdoor Display: 1.000cd/m² transmissive brightness with circular polariser
Camera	Rear (optional): 3MP, autofocus with LED light	Rear (optional): 5MP, still picture
Expansion Slots		PC Card: x1, Type I or II, Allowable current 3.3V: 400 mA, 5V: 400 mA ExpressCard: x1, ExpressCard /34 or /54 SD/SDXC Memory Card: x1 RAM Module: x1 DDR3 200-pin SO-DIMM
Interfaces	Serial (RS232C): x1 LAN: x1 (depends on model) USB: 3.0 x1, 9-pin (2nd USB 2.0, 4-pin depends on model, eliminates LAN) Docking Connector: x1 Cradle I/O DC Input: x1	Serial: D-sub, 9-pin VGA: Mini D-sub, 15-pin optional[5] (eliminates serial) Headphone: Mini-jack, 3.5 DIA, stereo Microphone: Mini-jack, 3.5 DIA, stereo DC Input: Jack USB: 2.0 x2 (4-pin), 3.0 x1 (9-pin), 4th USB optional[5] (Modular Bay Port) Rugged USB: 2.0 x1 or x2, 4-pin optional[5] (Modular Bay Port) LAN: RJ-45, 2nd LAN optional[5] (Modular Bay Port) Industry Cradle: x1
Connectivity	Bluetooth™: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Centrino® Advanced-N 6235 802.11 a/b/g/n compliant LAN: IEEE 802.3 10 Base-T / IEEE 802.3u 100 Base-TX / IEEE 802.3ab 1000 Base-T	Bluetooth™: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Centrino® Advanced-N 6235 802.11 a/b/g/n compliant LAN: IEEE 802.3 10Base-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T (2nd LAN 100MBit optional[5])
Power	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 16V DC, 3.75A Battery Pack: Lithium-Ion (7.2V, 3400mAh) x2 packs hot swappable Battery Life: Approx. 7 hours (Windows® 7, Mobile Mark™ 2007, LCD brightness: 60cd/m²)	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 15.6V DC, 7.05A Battery: Lithium-Ion (10.8V, 6.2Ah) Battery Life: Approx. 9 hours (Windows® 8.1, Mobile Mark™ 2007, LCD brightness: 60cd/m²)
Security Features	TPM (TCG V1.2 compliant)	Password security (supervisor password, user password, hard disc lock), Kensington Lock, Smartcard Reader (optional)
Dimensions (W x H x D) & Weight (Approx.)	274mm x 268mm x 58mm / 10.8" x 10.6" x 2.3" 1.58kg / 3.5lb (including hand strap)	349mm x 46mm x 244mm / 13.7" x 1.8" x 9.6" 2.25kg / 4.96lb
Options for Integration	Barcode Reader, 3G Mobile Broadband (HSPA+, 14.4Mbps DL), Combined Contactless Smart Card (ISO 14443 Type A/B) and RFID (ISO 15693), Contact Smartcard Reader, GPS, Fingerprint Reader	4G Mobile Broadband (LTE), GPS
Ruggedisation	Water resistance test: IEC529 (JIS C0920) IPX54, MIL-STD 810G 506.5, I & III[4] Dust resistance test: IEC529 (JIS C0920) IP6X4, MIL-STD 810G 510.5, I & II[4] Gravity drop resistance test: MIL-STD 810G 516.6, IV (180cm drop) (Field Model only)[4] Vibration resistance test: MIL-STD 810G 514.6, category 24 (Field model only)[4]	Water resistance test: IPX5[1] Dust resistance test: IP6X[1] Gravity drop resistance test: 90cm drop[5]

Panasonic recommends Windows.

	BUSINESS RUGGED	BUSINESS RUGGED
	CF-LX3 Slim and lightweight 14" Windows 8.1 Pro business Notebook 	**CF-AX3** One of the world's lightest business rugged, 2-in-1 convertible Ultrabooks™ inspired by Intel. product design award 2014
Mobile Computing Platform / CPU	Intel® Core™ i5-4310U vPro™ processor (2GHz, 3MB Intel® Smart Cache)	Intel® Core™ i5-4300U vPro™ processor (1.9GHz, 3MB Intel® Smart Cache)
Operating System	Windows 8.1 Pro Windows® 7 Professional downgrade	Windows 8.1 Pro Windows® 7 Professional downgrade
Memory & Storage	4GB DDR3L SDRAM 128GB SSD (SATA)	4GB DDR3L SDRAM 128GB SSD (SATA)
Display	14" Active Matrix (TFT) colour LCD, 1600 x 900 pixels, HD+	11.6" Active Matrix (TFT) colour LCD, 1920 x 1080 pixels, Full HD 10 finger capacitive touchscreen
Camera	Front: Full-HD 1080p (still image max. 1920 x 1080 pixels) with stereo microphone	Front: 720p
Expansion Slots	SD/SDXC Memory Card: x1	SD/SDXC Memory Card: x1
Optical Drive		
Interfaces	External Display (VGA port): Mini D-sub, 15-pin HDMI: x1 Headphone: Mini-jack, 3.5 DIA, stereo Microphone: Mini-jack, 3.5 DIA, stereo DC Input: Jack USB: 3.0 x2, 9-pin USB: 2.0 x1, 4-pin LAN: RJ-45	External Display (VGA port): Mini D-sub, 15-pin HDMI: x1 Headphone: Mini-jack, 3.5 DIA, stereo Microphone: Mini-jack, 3.5 DIA, stereo DC Input: Jack USB: 3.0 x2, 9-pin LAN: RJ-45
Connectivity	Bluetooth™: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 7260 LAN: IEEE 802.3 10 Base-T / IEEE 802.3u 100 Base-TX / IEEE 802.3ab 1000 Base-T	Bluetooth™: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-N 7260 802.11 a/b/g/n compliant LAN: IEEE 802.3 10 Base-T / IEEE 802.3u 100 Base-TX / IEEE 802.3ab 1000 Base-T
Power	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 16V DC, 4.06A Battery: Lithium-Ion (10.8V, 7100mAh) Battery Life: Approx. 14 hours (Windows® 7, Mobile Mark™ 2007, LCD brightness: 60cd/m²)	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 16V DC, 5.0A Battery: Main: Lithium-Ion (7.2V, Typical 4400mAh / Minimum 4100mAh); Internal: Lithium-Ion (7.2V, Typical 2200mAh / Minimum 2050mAh) Battery Life: Approx. 12 hours (Windows® 7, Mobile Mark™ 2007, LCD brightness: 60cd/m²)
Security Features	TPM (TCG V1.2 compliant), Integrated hardware security lock slot, Password security (supervisor password, user password, HDD lock)	TPM (TCG V1.2 compliant), Integrated hardware security lock slot, Password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight (Approx.)	333mm x 24.5mm x 275.6mm / 13.11" x 0.96" x 8.88" 1.26kg / 2.78lb	288mm x 18mm x 194mm / 11.34" x 0.71" x 7.64" 1.135kg / 2.502lb
Options for Integration		Smart Card Reader, 4G Mobile Broadband (LTE), 3G Mobile Broadband (HSPA+)
Ruggedisation	Passes a 76cm free-fall test[3] 100kgf pressurised vibration test[3]	Passes a 76cm free-fall test[3] 100kgf pressurised vibration test[3]

	SEMI RUGGED	SEMI RUGGED
	CF-C2 Combining ground-breaking ergonomics, semi rugged design and outstanding performance, the Toughbook CF-C2 redefines the way mobile professionals operate, allowing them to be more productive than ever before. 	**CF-53** Combines industry-leading balanced-mobility with semi-rugged features, integrated carrying handle and optional sunlight-viewable touchscreen. It is the ideal companion for all mobile users looking for premium mobile business quality combined with rich computing power.
Mobile Computing Platform / CPU	Intel® Core™ i5-4300U vPro™ processor (1.9GHz, 3MB Intel® Smart Cache)	Intel® Core™ i5-4310U vPro™ processor (2.0GHz, 3MB Intel® Smart Cache)
Operating System	Windows 8.1 Pro Windows® 7 Professional downgrade	Windows 8.1 Pro Update Windows® 7 Professional downgrade
Memory & Storage	4GB DDR3L SDRAM (max. 8GB) 500GB HDD (SATA)	4GB DDR3L SDRAM (max. 16GB) 500GB HDD (SATA)
Display	12.5" Active Matrix (TFT) IPS colour LCD, 1366 x 768 pixels, HD (up to 500cd/m²) 10 finger capacitive touchscreen and digitiser	14" Active Matrix (TFT) colour LCD, 1366 x 768 pixels (HD) (Standard model) or 14" Active Matrix (TFT) colour LCD, 1366 x 768 pixels (HD) with sunlight viewable resistive touchscreen (up to 1,000cd/m²) (Touchscreen model) Graphic Chip: Intel® HD 4400 Graphics, UMA (Windows® 8.1 64bit max. 1792MB)
Camera	Front: 720p Rear (optional): 5MP, still picture	Front (optional): 720p, digital microphone
Expansion Slots	ExpressCard: x1, ExpressCard/34 optional SD/SDXC Memory Card: x1 RAM Module: x1, DDR3L SDRAM, 204-pin SO-DIMM (1.5V, SO-DIMM, PC3-10600 compliant)	PC Card: x1, Type I or Type II, Allowable Current: 3.3V: 400mA, 5V: 400mA[2] ExpressCard: x1, ExpressCard/34 or ExpressCard/54[2] SD/SDXC Memory Card: x1 RAM Module: x2, DDR3L 200-pin SO-DIMM (1.5V, DDR3 SDRAM, PC3-10600 compliant), one slot occupied
Optical Drive		DVD Super Multi Drive
Interfaces	Serial (16550A compatible): D-sub, 9-pin optional External Display (VGA port): Mini D-sub, 15-pin optional HDMI: x1 Headphone: Mini-jack, 3.5 DIA, stereo Microphone: Mini-jack, 3.5 DIA, stereo DC Input: Jack USB: 2.0 x1, 4-pin; 3.0 x2, 9-pin NFC: x1 optional Modem: RJ-11 optional LAN: RJ-45 Port Replicator: 100-pin	Serial (16550A compatible): D-sub, 9-pin External Display (VGA port): Mini D-sub, 15-pin HDMI: x1 Headphone: Mini-jack, 3.5 DIA, stereo Microphone: Mini-jack, 3.5 DIA, stereo DC Input: Jack USB 2.0: x2, 4-pin USB 3.0: x2, 9-pin Firewire (IEEE1394a): x1, 4-pin (Project based) Modem: RJ-11 (Project based) LAN: RJ-45 (2nd LAN Project based) Port Replicator: 100-pin
Connectivity	Bluetooth™: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-N 7260 802.11 a/b/g/n compliant; slide on/off switch LAN: IEEE 802.3 10 Base-T / IEEE 802.3u 100 Base-TX / IEEE 802.3ab 1000 Base-T	Bluetooth™: 4.0 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 7260 LAN: IEEE 802.3 10Base-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T (2nd LAN Project based) Modem Data: 56 kbps (V.92); Fax: 14.4 kbps
Power	AC Adaptor: Input: 100–240V AC, 50Hz/60Hz; Output: 15.6V DC, 7.05A Battery: Lithium-Ion (10.8V, Typical 6800mAh / Minimum 6400mAh) Battery Life: Approx. 14 hours (Windows® 7, Mobile Mark™ 2007, LCD brightness: 60cd/m²)	AC Adaptor: Input: 100–240V, 50Hz/60Hz; Output: 15.6V, 7.05A Battery: Lithium-Ion (10.8V, Typical 6750 mAh / Minimum 6300 mAh) Battery Life: Approx. 15 hours (Windows® 8.1, Mobile Mark™ 2007, LCD brightness: 60cd/m²) Power Management: Standby function, ACPI BIOS
Security Features	TPM (TCG V1.2 compliant), Integrated hardware security lock slot, Password security (supervisor password, user password, HDD lock)	TPM (TCG V1.2 compliant), Password security (supervisor password, user password, hard disc lock), Integrated hardware security lock slot
Dimensions (W x H x D) & Weight	299mm x 25mm x 217.3mm / 11.8" x 1.0" x 8.6" (including handstrap) 1.81kg / 3.99lb	341mm x 48-55mm x 281mm / 13.6" x 1.9-2.2" x 11.2" (including carrying handle) Standard model: 2.65kg / 5.84lb (including carrying handle) Touchscreen model: 2.95kg / 6.50lb (including carrying handle)
Options for Integration	Full size smart card reader, half size smart card reader, rear camera (5MP), 4G Mobile Broadband (LTE), Modem	Fingerprint Reader, Smart Card Reader, 3G Mobile Broadband (HSPA+, up to 14.4Mbps), 4G Mobile Broadband (LTE, up to 100Mbps), dedicated GPS, RFID
Ruggedisation	Withstands drops from a height of 76cm (bottom)[3] Spill resistant touchpad, keyboard Fanless design	Withstands drops from a height of 76cm[1] Water resistant touchpad, keyboard MIL-STD 810G (Vibration, altitude, drop, shock, temperature & humidity)